



Influence of changes in the station location and measurement routine on the homogeneity of the temperature, wind speed and precipitation time series

S. Keevallik (1) and K. Vint (2)

(1) Marine Systems Institute at TUT, Tallinn, Estonia (sirje.keevallik@gmail.com), (2) Estonian Meteorological and Hydrological Institute, Tallinn, Estonia (kairivint@gmail.com)

Changes in location, instrumentation and measurement times are documented for three Estonian meteorological stations during the last century. These metadata were used to check if such changes have introduced significant discontinuities into the time series of daily mean temperature, average wind speed and daily precipitation sums. For this purpose, time periods of the lengths of at least five years were separated before and after the change under consideration and average values of meteorological elements during these periods were compared by means of t-test at the significance level of 0.05. Most changes introduced increasing discontinuities into the temperature and precipitation time series and decreasing ones into the wind speed time series. Earlier climatological analyses have shown that in Estonia the temperature has risen, the precipitation sums have increased and wind speed has decreased. Therefore, it is very difficult to separate natural climatological trends from the artificial changes.